

its western quadrants. Cautionary Signals were displayed on the Atlantic coast from Hatteras to Eastport in advance of this storm.

Nos. VII and VIII originated in the extreme Northwest, and moved to the north of the Lake region during the 10th, 11th and 12th, without producing marked changes in the meteoric conditions.

No. IX. A depression in the Northwest on the night of the 11th which was apparently divided by the advance of an area of high barometer from the upper Missouri valley, forming No. VIII, already referred to, and No. IX, which moved slowly from the Southwest to the Lower Ohio valley, where it was central on the morning of the 13th, as an area of precipitation, and afterwards to the Atlantic coast, dividing on the morning of the 14th in the upper Ohio valley, and uniting after the minor depressions had passed to the eastern coast. Brisk and high northeast winds, accompanied by sleet and snow, prevailed in the districts north of the centre, and rain prevailed generally throughout the Southern States.

No. X. Central in the Northwest on the morning of the 14th, while the preceding depression was central on Lake Erie. It moved almost directly to the east over the northern portion of the Lake region and St. Lawrence valley to the Gulf of St. Lawrence, as one of the severe storms of the month, disastrous gales being reported from the Lakes on the 14th and 15th, and in the north Atlantic during the 15th and 16th. The barometer fell rapidly as the centre advanced, and the unusually low reading of 28.65 was observed at Sydney on the morning of the 17th. The winds became more dangerous after shifting to the north and west, and the barometric gradient was one inch to 400 miles when the centre was near Cape Breton.

No. XI was central in the extreme Northwest on the afternoon of the 17th, and the barometer was generally below the mean at the western stations. The course of this depression differs but slightly from the preceding one, while the reports show less marked changes. In the former the barometer fell rapidly with the easterly movement; in the latter the lowest barometric reading was observed in the northwest.

No. XII. The latitude of the origin and the track pursued by this depression, are approximately the same as in the two preceding depressions. It passed from the upper Mississippi valley to the Atlantic coast, during the 22d and 23d, causing heavy rains and high winds in advance of the center, and gales on the Atlantic coast during the 24th. The extreme low temperature which, followed this depression, may be more properly referred to the marked area of high barometer, which immediately followed.

No. XIII. The barometer was unusually low in the western territories, on the midnight of the 24th, when this depression developed, passing rapidly, first to the southeast, afterwards to the northeast as a severe storm, the area of rain including the entire country east of the Rocky Mountains. Signals were ordered, and generally verified, at the stations on the lakes and on the Atlantic coast, north of Cape Hatteras.

No. XIV moved rapidly from Nebraska to the Gulf of St. Lawrence during the 27th, 28th and 29th, and was the most violent storm of the month, the winds increasing in force until the center passed to the north Atlantic. Marine disasters occurred in the Gulf of St. Lawrence, causing great loss of life and property. The signals ordered at the several stations for this storm, were observed, and are reported, by those interested in navigation, as having been particularly advantageous to the shipping interests of the country.

TEMPERATURE OF THE AIR.

The isothermal lines on Chart No. II show the mean distribution of temperature for the month, and, also, that the decrease of temperature, with the increase of latitude, is uniform, and averages, in the districts east of the Rocky Mountains, 2° for each

degree of latitude. The table shows that the temperature has been decidedly below the mean in New England, the St. Lawrence valley and Minnesota; and above the mean in the Gulf states. The temperature has fallen below freezing at all stations north of a line passing from Shreveport north of Vicksburg, following the 33d parallel. The temperature on the Pacific coast was slightly above the mean, and north of San Diego, averaged 12° higher than the temperature of the corresponding latitude on the Atlantic coast.

Ranges of Temperature.—The ranges of temperature has been unusually great in the interior, that of Breckinridge being 87°; Cheyenne, 80°; Dodge City, 84°; Duluth, 76°; Mt. Washington, 77°; North Platte, 76°; Malone, 70°; Omaha, 75°; Pembina, 65°; St. Paul, 80° and Yankton, 80°.

PRECIPITATION.

Chart No. III shows, in a graphic manner, the precipitation for the month. This has been mostly in the form of rain south of the 42d parallel of latitude. North of this line considerable snow has fallen, particularly in Canada and the northern portion of the Upper Lake region. Regions of large precipitation are shown in Nova Scotia, portions of New England and New Jersey, from the Gulf northward to the lower Ohio valley and on the Pacific coast. The heaviest rains have fallen in the last-named district, amounting to 7.27 inches at San Francisco and 15.75 at Portland, Or., which is very much in excess of the mean for the month. The largest rainfalls east of the Rocky mountains have occurred in the central Mississippi valley, amounting to 7.96 inches at Cairo and 9.36 at Memphis. A large deficiency is noticeable in the Northwest, and at several stations in Kansas no rain or snow fell during the entire month.

Rainy Days.—The number of days during the month on which rain or snow fell averages as follows: In New England, the Middle States, the Ohio valley and Tennessee, 12; South Atlantic and Gulf States, 11; Lake region, 14; Northwest, 6.

Cloudy Days.—The average number of cloudy days (other than those on which rain or snow fell) is: In New England, 3; Middle Atlantic States, 2; South Atlantic States, 6; Gulf States, Ohio valley and Tennessee, 4; Lake region, 5; Northwest, 7.

RELATIVE HUMIDITY.

The mean relative humidity for the month ranges between 60 and 70 per cent, in the Northwest and thence southward to northern Texas. At nearly all of the stations elsewhere east of the Rocky mountains the mean for the month ranges between 70 and 80 per cent., except in Florida and on the Gulf coast, where it varies from 79 to 85. At the Rocky mountain stations the figures run from 54 at Santa Fe to 63 at Cheyenne. On the summit of Mt. Washington the mean is 91 and on Pike's Peak 77. This moist atmosphere at these elevated stations is due to their very low temperature.

WINDS.

The prevailing winds for the month are indicated by the arrows, flying with the wind, on Chart No. II. West and northwest winds have predominated in the Middle States, New England and the Lower Lake region, and northerly winds in Indian Territory, Arkansas, Tennessee and the Ohio valley, central Mississippi and lower Missouri valleys. Southerly winds have prevailed in the Gulf States, but elsewhere variable winds.

The total movements of the air for the month, independent of direction, average as follows in the various districts: New Jersey and New England coasts, 8,740 miles; interior of New England and the Middle States, 4,600; South Atlantic and Gulf coasts,